CLAIMS

What is claimed is:

1.   A method comprising:

associating a plurality of first counters with a plurality of pixel byte values, each counter associated with several pixel byte values;

incrementing a count in each first counter upon an occurrence of an associated pixel byte value in a first idle frame;

selecting a first set of pixel byte values based on the counts in the first counters;

associating each of the first set of pixel byte values with one of a plurality of second counters;

incrementing a count in each second counter upon an occurrence of the associated pixel byte value in a second idle frame;

selecting a second set of pixel byte values based on the counts in the second counters;

associating each of the second set of pixel byte values with a code; and

compressing a subsequent idle frame by replacing at least a minimum number of the second set of pixel byte values in the subsequent idle frame with the associated code.

2.   The method of claim 1, wherein each of the second set of pixel byte values is associated with a code if the second set of pixel byte values satisfies a threshold.

3.   The method of claim 1 further comprising:

decompressing a compressed idle frame by replacing a code with the associated pixel byte value.

4.   The method of claim 1 further comprising:

compressing a non-idle frame by replacing at least one of the second set of pixel byte values in the non-idle frame with the associated code.

5.   The method of claim 4 further comprising:

decompressing a compressed non-idle frame by replacing a code with the associated pixel byte value.

6.   The method of claim 1, wherein compressing a subsequent idle frame formats the subsequent idle frame as plurality of data blocks, each data block comprising:

a data field containing data representing a plurality of pixel bytes;

an encoding key that specifies which pixel bytes are represented by codes in the data field; and

a mode field that specifies a compression mode for the data field.

7.   The method of claim 6, wherein the mode field determines lengths for the data field and the encoding key.

8.   The method of claim 6 further comprising:

determining the compression mode based on patterns of the second set of pixel byte values in the subsequent idle frame.

9.   The method of claim 1 further comprising:

receiving an idle notification prior to receiving the first idle frame.

10.   A machine-readable medium providing instructions, which when executed by a machine, causes the machine to perform operations comprising:

associating a plurality of first counters with a plurality of pixel byte values, each counter associated with several pixel byte values;

incrementing a count in each first counter upon an occurrence of an associated pixel byte value in a first idle frame;

selecting a first set of pixel byte values based on the counts in the first counters;

associating each of the first set of pixel byte values with one of a plurality of second counters;

incrementing a count in each second counter upon an occurrence of the associated pixel byte value in a second idle frame;

selecting a second set of pixel byte values based on the counts in the second counters;

associating each of the second set of pixel byte values with a code; and

compressing a subsequent idle frame by replacing at least a minimum number of the second set of pixel byte values in the subsequent idle frame with the associated code.

12.   The machine-readable medium of claim 10, wherein each of the second set of pixel byte values is associated with a code if the second set of pixel byte values satisfies a threshold.

13.   The machine-readable medium of claim 10 further comprising:

decompressing a compressed idle frame by replacing a code with the associated pixel byte value.

14.   The machine-readable medium of claim 10 further comprising:

compressing a non-idle frame by replacing at least one of the second set of pixel byte values in the non-idle frame with the associated code.

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15.   The machine-readable medium of claim 14 further comprising:

decompressing a compressed non-idle frame by replacing a code with the associated pixel byte value.

16.   The machine-readable medium of claim 10, wherein compressing a subsequent idle frame formats the subsequent idle frame as plurality of data blocks, each data block comprising:

a data field containing data representing a plurality of pixel bytes;

an encoding key that specifies which pixel bytes are represented by codes in the data field; and

a mode field that specifies a compression mode for the data field.

17.   The machine-readable medium of claim 16, wherein the mode field determines lengths for the data field and the encoding key.

18.   The machine-readable medium of claim 16 further comprising:

determining the compression mode based on detecting patterns of the second set of pixel byte values in the subsequent idle frame.

19.   The machine-readable medium of claim 10 further comprising:

receiving an idle notification prior to receiving the first idle frame.

20.   An computer system comprising:

a processor coupled to a memory through a bus;

a graphics controller coupled to the processor through the bus; and

a compression process executed by the graphics controller to cause the graphics controller to;

associate a plurality of first counters with a plurality of pixel byte values, each counter associated with several pixel byte values,

increment a count in each first counter upon an occurrence of an associated pixel byte value in a first idle frame received from the processor,

select a first set of pixel byte values based on the counts in the first counters,

associate each of the first set of pixel byte values with one of a plurality of second counters,

increment a count in each second counter upon an occurrence of the associated pixel byte value in a second idle frame received from the processor,

select a second set of pixel byte values based on the counts in the second counters, associate each of the second set of pixel byte values with a code, and

compress a subsequent idle frame received from the processor by replacing at least a minimum number of the second set of pixel byte values in the subsequent idle frame with the associated code.

21. The system of claim 20, wherein the compression process further causes the graphics controller to associate each of the second set of pixel byte values with a code if the second set of pixel byte values satisfies a threshold.

22. The system of claim 20, wherein the compression process further causes the graphics controller to compress a non-idle frame received from the processor by replacing at least a minimum number of the second set of pixel byte values in the non-idle frame with the associated code upon receiving an override indicator from the processor.

23. The system of claim 20, wherein the graphics controller executes the compression process upon receiving an idle notification from the processor.

24. The system of claim 20, wherein the compression process further causes the graphics controller to store the compressed subsequent idle frame to the memory as plurality of data blocks, each data block comprising:

a data field containing data representing a plurality of pixel bytes;

an encoding key that specifies which pixel bytes are represented by codes in the data field; and

a mode field that specifies a compression mode for the data field.

25. The system of claim 24 further comprising a graphics memory coupled to the graphics controller and wherein the graphics controller stores the plurality of data blocks to the graphics memory.

26. The system of claim 20, wherein the compression process is embedded in logic within the graphics controller.

27. The system of claim 20 further comprising a decompression process executed by the graphics controller to cause the graphics controller to decompress a compressed idle frame by replacing a code with the associated pixel byte value.

28. An apparatus comprising:

a first set of comparators coupled to a set of accumulators, each comparator to increment a corresponding accumulator when a pixel byte value in an idle frame satisfies a parameter for the comparator, wherein the parameter is a value range for a first pass;

a statistics register coupled to the set of accumulators to determine a subset of the accumulators based on accumulator counts;

a second set of comparators coupled to the set of accumulators and the statistics register to determine a set of pixel byte values corresponding to the subset of the

accumulators, wherein the set of pixel byte values are used as the parameters for the first set of comparators for a second pass; and

a set of registers coupled to the second set of comparators to hold the set of pixel byte values upon completion of the second pass.

29.   The apparatus of claim 28 further comprising:

logic to separate pixels in the idle frame into pixel bytes.

30.   The apparatus of claim 28, wherein the first pass processes a first idle frame and the second pass processes a second idle frame.